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10/538,177	10/12/2006	Seiichi Okuda	KUD-005	1744

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EXAMINER	
ZEC, FILIP	

ART UNIT	PAPER NUMBER
3744	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,177	OKUDA ET AL.	
	Examiner	Art Unit	
	Filip Zec	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/7/2010 have been fully considered but they are not persuasive.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, page 10, 2nd paragraph, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, the applicant is arguing that "there is no reason to modify Satoshi". The applicant is reminded that even though Sakai and Satoshi teach a refrigeration circuit comprising similar elements of a vapor compression cycle (compressor, condenser, defroster etc.), it is the way said elements are connected which defines the modification and improvement by Sakai. Thus, by modifying Satoshi to include a bypass line (P_6, FIG. 1) which delivers hot gas (col 3, lines 15-25) from a point upstream of the condenser (20, FIG. 1), to the evaporator coil (50a, FIG. 1), Sakai improves said system of Satoshi whereby the defrosting gas is delivered directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping).

In response to applicant's argument that the proposed modification of Satoshi in view of Sakai would require "*a wholesale replacement*", page 10, last paragraph, the test for obviousness

is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the modification would require installation of one pipe (P_6, FIG. 1 in Sakai) which would connect the outlet of the compressor (7, FIG. 1 of Satoshi) to the point in between the condenser (9, FIG. 1) and the defroster (20, FIG. 1).

In reference to the applicant's argument that Satoshi discloses "*a fully workable arrangement which is not in need of modification and would not improve the efficiency of the ice removal process*", page 11, third paragraph, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, by having the structure as cited in FIG. 1, Sakai improves the system of Satoshi whereby the defrosting gas is delivered directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping).

In response to the applicant's argument regarding the Faqih reference, page 11, last paragraph, the applicant is reminded that the fan-evaporator (607 and 608, FIG. 3, respectively) is cited to show how the exhaust air blown by the fan deposits its heat load and condensates its

humidity load (col 11, lines 59-62) in order to accelerate the defrosting process and improve the performance of the cooling unit when it is switched to air-cooling mode (col 10, lines 12-15) and not whether the fan is blowing through or against the surface of the evaporator, as the claim limitation is "*within the defroster*". Since Satoshi teaches a defroster (20, FIG. 1) which is an ice trap, in order to dehumidify said ice trap, one of ordinary skill in the art would find it obvious to install said to blow the air inside of said defroster in order to perform said dehumidification and accelerate the defrosting process.

The rejections remain as stated.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 10, 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP 11-132582 to Satoshi (Satoshi) in view of U.S. Patent 5,014,521 to Sakai et al. (Sakai).

In reference to claim 1, Satoshi discloses an air-refrigerant cooling apparatus comprising a compressor compressing refrigerant air (7); a heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (ice trap 20, FIG. 1; per obviousness explanation below) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a

cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); and a cooled chamber bypass pipe allowing said refrigerant air discharged from said defroster to bypass said cooled chamber and to enter a pipe connected to an outlet of said cooled chamber (pg. 10, paragraph 10, line 9-12); and a defrosting bypass pipe branched from a pipe connected to an outlet of said compressor to supply said defroster with said refrigerant air (warm air bypass, for warming defroster, see fig. 1), but does not teach that said defrosting bypass pipe is located from a point upstream of the heat exchanger directly to the defroster and a defroster. Satoshi teaches an ice trap (20, FIG. 1) which removes moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3). One of ordinary skill in the art would find it obvious to replace an ice trap with a defroster in order to improve the efficiency of the ice removal process. Sakai shows a refrigeration system (FIG. 1) wherein a compressor (10, FIG. 1) delivers hot gas (col 3, lines 15-25) via a hot gas bypass line (P_6, FIG. 1) from a point upstream of the condenser (20, FIG. 1), to the evaporator coil (50a, FIG. 1) in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Satoshi, to include said defrosting bypass pipe from a point upstream of the heat exchanger and connect said pipe directly to the defroster, as taught by Sakai, in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant

transfer (through piping) and to replace the ice trap of Satoshi with a defroster in order to improve the efficiency of the ice removal process.

In reference to claim 2, Satoshi and Sakai teach the cooling apparatus as explained in the rejection of claim 1, and Satoshi also discloses a heat exchanger bypass pipe (22, fig. 2) bypassing said heat exchanger to introduce said refrigerant from said compressor to said expansion turbine.

In reference to claim 3, Satoshi and Sakai teach the cooling apparatus as explained in the rejection of claim 1, and Satoshi also discloses a device measuring a pressure in said defroster (pg. 17, paragraph 24, lines 1-5).

In reference to claim 10, Satoshi discloses transport apparatus comprising an air-refrigerant cooling apparatus including a compressor compresses refrigerant air (7); a heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig. 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (ice trap 20, FIG. 1; per obviousness explanation below) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); a cooled chamber bypass pipe allowing said refrigerant air discharged from said defroster to bypass said cooled chamber and to enter a pipe connected to an outlet of said cooled chamber (pg. 10, paragraph 10, line 9-12) and a defrosting bypass pipe branched from a pipe connected to an outlet of said compressor to supply said defroster with said refrigerant air (warm air bypass, for warming defroster, see fig. 1), but does not teach that said

defrosting bypass pipe is located from a point upstream of the heat exchanger directly to the defroster and a defroster. Satoshi teaches an ice trap (20, FIG. 1) which removes moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3). One of ordinary skill in the art would find it obvious to replace an ice trap with a defroster in order to improve the efficiency of the ice removal process. Sakai shows a refrigeration system (FIG. 1) wherein a compressor (10, FIG. 1) delivers hot gas (col 3, lines 15-25) via a hot gas bypass line (P_6, FIG. 1) from a point upstream of the condenser (20, FIG. 1), to the evaporator coil (50a, FIG. 1) in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Satoshi, to include said defrosting bypass pipe from a point upstream of the heat exchanger and connect said pipe directly to the defroster, as taught by Sakai, in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping) and to replace the ice trap of Satoshi with a defroster in order to improve the efficiency of the ice removal process.

In reference to claim 12, Satoshi discloses a method for operating an air- refrigerant cooling apparatus including a compressor compressing refrigerant air (7, pg 9, paragraph 9, line 1-2); a heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster ((ice trap 20, FIG. 1; per obviousness explanation below)

removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); a cooled chamber bypass pipe allowing said refrigerant air discharged from said defroster to bypass said cooled chamber and to enter a pipe connected to an outlet of said cooled chamber (pg. 10, paragraph 10, line 9-12); and a defrosting bypass pipe branched from a pipe connected to an outlet of said compressor to supply said defroster with said refrigerant air (warm air bypass, for warming defroster, see fig. 1), said method comprising placing said air-refrigerant cooling apparatus into selected one of a plurality of operation modes including a cooling operation mode for cooling said cooled chamber (default, pg. 16, paragraph 23, line 2- 5), and a defrosting mode for defrosting said defroster (pg. 18, paragraph 27, line 1-4); in response to said air-refrigerant cooling apparatus being placed into said cooling operation mode, opening valves disposed on an inlet and outlet of said cooled chamber (dampers, 16,17), and closing a valve disposing in said defrosting bypass line (15); and in response to said air-refrigerant cooling apparatus being placed into said defrosting operation mode, closing said valves disposed on said inlet and outlet of said cooled chamber (dampers, 16,17), and opening said valve disposing in said defrosting bypass line (15), with a motor (M) for driving said compressor and said expansion turbine operated at a rotational speed lower than that for said cooling operation mode (capable of) (see fig. 1), but does not teach that said defrosting bypass pipe is located from a point upstream of the heat exchanger directly to the defroster and a defroster. Satoshi teaches an ice trap (20, FIG. 1) which removes moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3).

One of ordinary skill in the art would find it obvious to replace an ice trap with a defroster in order to improve the efficiency of the ice removal process. Sakai shows a refrigeration system (FIG. 1) wherein a compressor (10, FIG. 1) delivers hot gas (col 3, lines 15-25) via a hot gas bypass line (P_6, FIG. 1) from a point upstream of the condenser (20, FIG. 1), to the evaporator coil (50a, FIG. 1) in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Satoshi, to include said defrosting bypass pipe from a point upstream of the heat exchanger and connect said pipe directly to the defroster, as taught by Sakai, in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping) and to replace the ice trap of Satoshi with a defroster in order to improve the efficiency of the ice removal process.

In reference to claim 13, Satoshi and Sakai teach the cooling apparatus operating method as explained in the rejection of claim 12, and Satoshi also discloses an air-refrigerant cooling apparatus further including a heat exchanger bypass pipe bypassing said heat exchanger to introduce said refrigerant from said compressor to said expansion turbine (22, fig. 2), and said method further comprising opening a valve (23) disposed in said heat exchanger bypass pipe (see fig. 2) when said air-refrigerant cooling apparatus is placed into said defrosting operation mode, but they do not teach closing a valve introducing said refrigerant air discharged from said compressor into said heat exchanger. The general concept of providing a valve to close off a

passage way near a bypass is old and well known in the art, as illustrated by the damper valves in Satoshi, near the cooling room bypass (see fig. 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the method of Satoshi and Sakai, and provide a valve at the heat exchanger bypass and close the valve introducing said refrigerant air discharged from said compressor into said heat exchanger, in order to increase the temperature of the flow of air to the defroster.

In reference to claim 14, Satoshi and Sakai teach the cooling apparatus operating method as explained in the rejection of claim 12, and Satoshi also discloses a device measuring a pressure in said defroster, and said method further comprising: switching said air-refrigerant cooling apparatus from said cooling operation mode to said defrosting operation mode in response to said measured pressure (pg. 17, paragraph 24, line 1-5).

In reference to claim 15, Satoshi and Sakai teach the air refrigerant cooling apparatus as explained in the rejection of claim 1, and Satoshi also discloses a water cooled heat exchanger (8, FIG. 1) upstream of the first said heat exchanger (9, FIG. 1).

In reference to claim 16, Satoshi and Sakai teach the air refrigerant cooling apparatus as explained in the rejection of claim 15, but do not teach that the defrosting bypass pipe branches from between the water cooled heat exchanger and the first said heat exchanger. Sakai a hot gas bypass line (P_6, FIG. 1) from a point upstream of the condenser (20, FIG. 1), to the evaporator coil (50a, FIG. 1) in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping). Additionally, the gas released from the condenser (8, FIG. 1 of

Satoshi) is a higher temperature then the gas released from the air-to-air heat exchanger (9, FIG. 1), and one of ordinary skill in the art would find it obvious to connect the defroster with said outlet from the condenser upstream of the air-to-air heat exchanger.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Satoshi, to include said defrosting bypass pipe from a point upstream of a water cooled heat exchanger and connect said pipe directly to the defroster at a temperature higher then the temperature at the outlet of the air-to-air heat exchanger , as taught by Sakai, in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping), to replace the ice trap of Satoshi with a defroster in order to improve the efficiency of the ice removal process.

In reference to claim 17, Satoshi and Sakai teach the air refrigerant cooling apparatus as explained in the rejection of claim 15, and Satoshi also discloses that the first said heat exchanger (9, FIG. 1) exchanges heat between the refrigerant flowing from the compressor (7, FIG. 1) and refrigerant flowing to the compressor (page 12, lines 1-4).

In reference to claim 18, Satoshi and Sakai teach the air refrigerant cooling apparatus as explained in the rejection of claim 10, and Satoshi also discloses a water cooled heat exchanger (8, FIG. 1) upstream of the first said heat exchanger (9, FIG. 1).

In reference to claim 19, Satoshi and Sakai teach the air refrigerant cooling apparatus as explained in the rejection of claim 18, but do not teach that the defrosting bypass pipe branches from between the water cooled heat exchanger and the first said heat exchanger. Sakai a hot gas bypass line (P_6, FIG. 1) from a point upstream of the condenser (20, FIG. 1), to the evaporator

coil (50a, FIG. 1) in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping). Additionally, the gas released from the condenser (8, FIG. 1 of Satoshi) is a higher temperature then the gas released from the air-to-air heat exchanger (9, FIG. 1), and one of ordinary skill in the art would find it obvious to connect the defroster with said outlet from the condenser upstream of the air-to-air heat exchanger.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Satoshi, to include said defrosting bypass pipe from a point upstream of a water cooled heat exchanger and connect said pipe directly to the defroster at a temperature higher then the temperature at the outlet of the air-to-air heat exchanger , as taught by Sakai, in order to deliver defrosting gas directly to the evaporator coil, via the shortest route, thus minimizing the energy losses and possible leakages linked with the refrigerant transfer (through piping), to replace the ice trap of Satoshi with a defroster in order to improve the efficiency of the ice removal process.

In reference to claim 20, Satoshi and Sakai teach the air refrigerant cooling apparatus as explained in the rejection of claim 18, and Satoshi also discloses that the first said heat exchanger (9, FIG. 1) exchanges heat between the refrigerant flowing from the compressor (7, FIG. 1) and refrigerant flowing to the compressor (page 12, lines 1-4).

4. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi in view of Sakai as applied to claim 1 above, and further in view of U.S. Patent 6,481,232 to Faqih (Faqih).

In reference to claims 4 and 5, Satoshi and Sakai teach the cooling apparatus as explained in the rejection of claim 1, but do not teach a defroster drying mechanism exchanging moisture-including air within said defroster with external air (per claim 4), wherein said defroster drying mechanism includes a fan discharging air within said defroster (per claim 5). Faqih teaches an apparatus for cooling of closed spaces (FIG. 3) which comprises an evaporator (608, FIG. 3) and a fan (607, FIG. 3) which passes the consumed air in contact with the surfaces of the evaporator, wherein the exhaust air deposits its heat load and condensate its humidity load (col 11, lines 59-62) in order to accelerate the defrosting process and improve the performance of the cooling unit when it is switched to air-cooling mode (col 10, lines 12-15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Satoshi and Sakai, to include a fan which passes the consumed air in contact with the surfaces of the evaporator, wherein the exhaust air deposits its heat load and condensate its humidity load, as taught by Faqih, in order to accelerate the defrosting process and improve the performance of the cooling unit when it is switched to air-cooling mode.

In reference to claim 6, Satoshi, Sakai and Faqih teach the cooling apparatus as explained in the rejection of claim 4, and Satoshi also discloses said defroster drying mechanism includes: a suction pipe disposed at a position experiencing a relatively low pressure within a pipe system provided for said air-refrigerant cooling apparatus to communicate with the outside of said pipe system (first air circuit, pg. 18, paragraph 26, line 9-11), and a discharge pipe disposed at a position experiencing a relatively high pressure within said pipe system to communicate with the outside of said pipe system (drain, 21).

5. Claims 7-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi in view of U.S. Patent 6,481,232 to Faqih (Faqih).

In reference to claims 7 and 8, Satoshi discloses the air-refrigerant cooling apparatus comprising a compressor compressing refrigerant air (7, pg 9, paragraph 9, line 1-2); heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig. 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (20) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1), but does not teach a defroster drying mechanism exchanging moisture-including air within said defroster with external air (per claim 7), wherein said defroster drying mechanism includes a fan discharging air within said defroster (per claim 8). Faqih teaches an apparatus for cooling of closed spaces (FIG. 3) which comprises an evaporator (608, FIG. 3) and a fan (607, FIG. 3) which passes the consumed air in contact with the surfaces of the evaporator, wherein the exhaust air deposits its heat load and condensate its humidity load (col 11, lines 59-62) in order to accelerate the defrosting process and improve the performance of the cooling unit when it is switched to air-cooling mode (col 10, lines 12-15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Satoshi, to include a fan which passes the consumed air in contact with the surfaces of the evaporator, wherein the exhaust air deposits its heat load and condensate its humidity load, as taught by Faqih, in order to accelerate the

defrosting process and improve the performance of the cooling unit when it is switched to air-cooling mode.

In reference to claim 9, Satoshi and Faqih teach the cooling apparatus as explained in the rejection of claim 7, and Satoshi also discloses said defroster drying mechanism includes a suction pipe disposed at a position experiencing a relatively low pressure within a pipe system provided for said air-refrigerant cooling apparatus to communicate with the outside of said pipe system (first air circuit, pg. 18, paragraph 26, line 9-11), and a discharge pipe disposed at a position experiencing a relatively high pressure within said pipe system to communicate with the outside of said pipe system (drain, 21).

In reference to claim 11, Satoshi discloses a transport apparatus comprising an air-refrigerant cooling apparatus including: a compressor compresses refrigerant air (7, pg 9, paragraph 9, line 1-2); a heat exchanger (9) cooling said refrigerant air discharged from said compressor (see fig. 1); an expansion turbine (10) expanding said refrigerant air discharged from said heat exchanger (pg 12, line 10-11); a defroster (20) removing moisture from said refrigerant air discharged from said expansion turbine (via collection of frozen particles, pg 17, line 1-3); and a cooled chamber (B) supplied with said refrigerant air from said defroster, said refrigerant air discharged from said cooled chamber being supplied to said compressor (see fig. 1); but does not teach a defroster drying mechanism exchanging moisture-including air within said defroster with external air. Faqih teaches an apparatus for cooling of closed spaces (FIG. 3) which comprises an evaporator (608, FIG. 3) and a fan (607, FIG. 3) which passes the consumed air in contact with the surfaces of the evaporator, wherein the exhaust air deposits its heat load and condensate its humidity load (col 11, lines 59-62) in order to accelerate the defrosting process

and improve the performance of the cooling unit when it is switched to air-cooling mode (col 10, lines 12-15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Satoshi, to include a fan which passes the consumed air in contact with the surfaces of the evaporator, wherein the exhaust air deposits its heat load and condensate its humidity load, as taught by Faqih, in order to accelerate the defrosting process and improve the performance of the cooling unit when it is switched to air-cooling mode.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Filip Zec whose telephone number is 571-270-5846. The examiner can normally be reached on Monday-Friday, from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Frantz Jules or Cheryl Tyler can be reached on 571-272-6681 or 571-272-4834, respectively. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art Unit 3744

/F. Z./
Examiner, Art Unit 3744

6/25/2010